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Applicant: Robert B. Havekost, et al.
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For: METHODS AND APPARATUS FOR INTEGRATED DISPLAY OF
PROCESS EVENTS AND TREND DATA

Examiner: Chante E. Harrison
Art Unit: 2672

CERTIFICATE OF MAILING UNDER 37 C.F.R. §1.8(a)

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APPELLANTS' BRIEF UNDER 37 C.F.R. § 1.192

Sir:

This brief is in furtherance of the Notice of Appeal mailed in this application on February 24, 2003. This brief is being filed in triplicate (37 CFR §1.192(a)). This brief contains the following items under the following headings and in the order set forth below (37 CFR §1.192(c)):

- I. REAL PARTY IN INTEREST (37 CFR §1.192(c)(1))
- II. RELATED APPEALS AND INTERFERENCES (37 CFR §1.192(c)(2))
- III. STATUS OF CLAIMS (37 CFR §1.192 (c)(3))
 - A. TOTAL NUMBER OF CLAIMS IN APPLICATION

B. STATUS OF ALL THE CLAIMS**C. CLAIMS ON APPEAL****IV. STATUS OF AMENDMENTS (37 CFR §1.192 (c)(4))****V. SUMMARY OF INVENTION (37 CFR §1.192 (c)(5))****VI. ISSUES (37 CFR §1.192 (c)(6))****VII. GROUPING OF CLAIMS (37 CFR §1.192(c)(7))****VIII. ARGUMENTS (37 CFR §1.192 (c)(8))****IX. APPENDIX OF CLAIMS INVOLVED IN THE APPEAL (37 CFR §1.192 (c)(9))****I. REAL PARTY IN INTEREST (37 CFR §1.192(c)(1))**

The real party in interest in this application is the assignee, Fisher Rosemount Systems, Inc., a corporation having a place of business at 8301 Cameron Road, Austin, Texas 78754.

II. RELATED APPEALS AND INTERFERENCES (37 CFR §1.192(c)(2))

There are no other appeals or interferences known to the Appellants, the Appellants' legal representative, or the assignee which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

III. STATUS OF CLAIMS (37 CFR § 1.192 (c)(3))**A. TOTAL NUMBER OF CLAIMS IN APPLICATION**

Claims in the application: 24

B. STATUS OF ALL THE CLAIMS

1. Claims canceled: None

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|--|------|
| 2. Claims withdrawn from consideration but not canceled: | None |
| 3. Claims pending: | 1-24 |
| 4. Claims allowed: | None |
| 5. Claims rejected: | 1-24 |

C. CLAIMS ON APPEAL

The claims on appeal are claims 1-24

IV. STATUS OF AMENDMENTS (37 CFR §1.192 (c)(4))

No amendment was filed subsequent to the final rejection mailed on October 22, 2002. However, Appellants sent proposed claim amendments to the Examiner via facsimile on February 11, 2003. During the telephone interview of February 14, 2003, the Examiner indicated that she did not believe the proposed claim amendments put the claims in allowable condition. The proposed claim amendments were not entered.

V. SUMMARY OF INVENTION (37 CFR §1.192 (c)(5))

The present invention relates to software that coordinates and processes trend data and event information acquired by a computerized control system (e.g., a control system for a manufacturing process). The software may display the trend data and the event information to a user on a computer display screen (Appellants' specification, page 5 line 31-page 6 line 5). An example of a process history chart that may be displayed to a user is shown in Figure 2. The process history chart 50 includes a trend chart 52 and an event table 54 (Appellants' specification, page 6 lines 9-10). As shown in Figure 2, the trend chart 52 and the event table 54 may be displayed on the display screen at the same time and may be integrated together, such that changes in the trend chart are automatically reflected in the event table and changes in the event table are automatically reflected in the trend chart (Appellants' specification, page 6 lines 11-13).

The trend chart is a representation of values of one or more process parameters over a selected time window. The trend chart may include a graph of the values of one or more selected

process parameters as a function of time over the selected time window (Appellants' specification, page 6 lines 14-17).

The event table includes a listing of process events that occurred during the selected time window of the trend chart. Process event records may include different information in different processing plants. The process event records may include information, such as a date and time, an event type, a category (e.g., instrument, process, system, user), an area (e.g., an area in the plant where the event occurred), a node (e.g., the name of a network node where the event was detected), and a module (e.g., a software module in which the event occurred) (Appellants' specification, page 6 line 27-page 7 line 6).

As shown in Figure 2, the trend chart 52 may include event markers 90, 92, etc. These event markers may include a word indicating the event type and a line that points to a time on the X-axis time scale when the event occurred (Appellants' specification, page 7 lines 9-10). The user may select one of the events on the trend chart, such as by positioning a cursor on the event marker of interest and clicking a pointing device. In response, the event in the event table corresponding to the selected event on the trend chart may be highlighted. This permits the user to determine the details of an event that occurred at a particular time in the trend chart, such as when a change occurred in one of the process parameters (Appellants' specification, page 4, lines 2-9). Alternatively, the user may select an event in the event table. In response, the event marker in the trend chart that corresponds to the selected event in the event table may be highlighted. This function permits the user to easily correlate changes in process parameters with process events (Appellants' specification, page 4, lines 9-12).

The trend chart and the event table may be configured by a user. For example, the user may add and remove particular process parameters from the trend chart (Appellants' specification, page 7, lines 25-29 and Figure 4A). The user may also configure the trend chart so that different process parameters may have different Y-axes. Alternatively, the trend chart may be configured so that different process parameters share the same Y-axis (Appellants' specification, page 7, lines 29-30 and Figure 3). The user may select a time window for the trend chart by specifying a start time and an end time (Appellants' specification, page 7, lines 30-32 and Figure 4B). The user may specify filter settings which configure the events to be displayed in the event table. The filter settings allow a user to specify the types and categories of events to be displayed in the event table (Appellants' specification, page 8, lines 19-28 and Figures 5A-

5B). The filter settings also allow a user to filter events out of the event table based on the area, node, or module in which the event occurred (Appellants' specification, page 9, lines 5-9 and Figure 5C-5E).

The configuration information for a trend chart and the filter settings for an event table may be saved in a chart file for later use. Thus, the configuration information and the filter settings need not be entered each time a user wishes to display a trend chart and an event table (Appellants' specification, page 9, lines 24-28).

Based on the configuration information specified by the user, the appropriate historical trend information may be retrieved from a trend database and the trend information may be displayed on the display screen. If the trend information requested by the user is current trend information, then the trend information may be retrieved from a run time database (Appellants' specification, page 10, lines 9-11). Likewise, the appropriate event records may be retrieved from an event database and the event table may displayed on the display screen (Appellants' specification, page 10, lines 12-14). The process history chart is displayed in accordance with the selected configuration and filter settings. The process history chart overcomes one or more disadvantages of prior art systems wherein separate process control applications were used to display historical process values and process event records.

VI. ISSUES (37 CFR §1.192 (c)(6))

- A.** Whether each of claims 1-5, 8-12, and 14-24 is unpatentable under 35 U.S.C. §102(b) as anticipated by Hanson, U.S. Patent No. 5,257,206.
- B.** Whether each of claims 1, 3-5, 9, 11 and 12 is unpatentable under 35 U.S.C. §102(b) as anticipated by Murphy et al., U.S. Patent No. 5,768,148.

VII. GROUPING OF CLAIMS (37 CFR §1.192(c)(7))

- A.** Group I. For purposes of this appeal only and for the rejection under 35 U.S.C. §102(b), claims 1, 3, 4, and 5 stand or fall together. Claim 1 is representative.
- B.** Group II. For purposes of this appeal only and for the rejection under 35 U.S.C. §102(b), claims 2 and 8 stand or fall together. Claim 2 is representative.
- C.** Group III. For purposes of this appeal only and for the rejection under 35 U.S.C. §102(b), claims 6 and 7 stand or fall together. Claim 6 is representative.

D. Group IV. For purposes of this appeal only and for the rejection under 35 U.S.C. §102(b), claims 9, 11, and 12 stand or fall together. Claim 9 is representative.

E. Group V. For purposes of this appeal only and for the rejection under 35 U.S.C. §102(b), claim 10 stands or falls alone.

F. Group VI. For purposes of this appeal only and for the rejection under 35 U.S.C. §102(b), claim 13 stands or falls alone.

G. Group VII. For purposes of this appeal only and for the rejection under 35 U.S.C. §102(b), claims 14 and 15 stand or fall together. Claim 14 is representative.

H. Group VIII. For purposes of this appeal only and for the rejection under 35 U.S.C. §102(b), claim 16 stands or falls alone.

I. Group IX. For purposes of this appeal only and for the rejection under 35 U.S.C. §102(b), claims 17, 18, and 19 stand or fall together. Claim 17 is representative.

J. Group X. For purposes of this appeal only and for the rejection under 35 U.S.C. §102(b), claim 20 stands or falls alone.

K. Group XI. For purposes of this appeal only and for the rejection under 35 U.S.C. §102(b), claim 21 stands or falls alone.

L. Group XII. For purposes of this appeal only and for the rejection under 35 U.S.C. §102(b), claim 22 stands or falls alone.

M. Group XIII. For purposes of this appeal only and for the rejection under 35 U.S.C. §102(b), claim 23 stands or falls alone.

N. Group XIV. For purposes of this appeal only and for the rejection under 35 U.S.C. §102(b), claim 24 stands or falls alone.

VIII. ARGUMENT (37 CFR §1.192(c)(8)(iii))

Preliminarily, Appellants note that the claims of Groups III and VI (i.e., claims 6, 7, and 13) were indicated to be rejected on the Office Action Summary of October 22, 2002. However, these claims were not rejected in the Detailed Action. In response to Appellants' telephone inquiry regarding the status of these claims, the Examiner indicated in a voice mail message that the omission of the rejection of claims 6, 7, and 13 in the Detailed Action was accidental. However, the Examiner did not specify the grounds for the rejection of claims 6, 7 and 13. Appellants further note that claims 6, 7, and 13 were indicated to be allowable in the Office

Action of May 6, 2002, yet the Office Action of October 22, 2002 provides no explanation for the subsequent rejection of these claims.

A. The rejection of claims 1-5, 8-12, and 14-24 under 35 U.S.C. §102(b) as anticipated by Hanson should be reversed.

The claims of Groups I-XIV stand rejected under 35 U.S.C. §102(b) as anticipated by Hanson, U.S. Patent No. 5,257,206. Each of these claims is addressed individually below.

Hanson discloses a statistical process control system for an air separation plant. Hanson states that with some air separation processes a very substantial amount of data is available over short time periods with respect to the dominant time constraints of the process. Subgrouping of this data may be applied to generate control charts (Col. 7, line 67 to Col. 8, line 3).

Figure 6 and Figure 7 of Hanson are control charts that show the results of analysis of data from the air separation processes (Col. 8, lines 37-45, Figure 3 reference numbers 300, 345). The control chart of Figure 6 is an S-chart showing the standard deviation of the subgroups. The control chart of Figure 7 shows the S-chart of Figure 6, along with an X-bar chart which shows the mean values of the subgroups (Col. 8, lines 42-45). Figure 8 shows a frequency distribution of the trend lengths of Figure 7. A trend length is the difference in value between consecutive samples of a chart (Col. 9, lines 55-66). The horizontal axis of Figure 8 is the trend length for the historical data. The vertical axis is the percent occurrence of these trend lengths. Also shown in Figure 8 is a statistical analysis of the frequency distribution used to calculate alarm threshold limits (Col. 10, lines 4-16).

Appellants note that during a telephone interview on January 21, 2003, the Examiner agreed that Appellants' claims patentably distinguish over Hanson. However, for the purposes of completeness and since the rejection over Hanson has not been withdrawn, arguments are set forth below.

1. The claims of Group I patentably distinguish over Hanson

For the claims of Group I, claim 1 is representative. Claim 1 is directed to *a method for displaying process information in a process control and/or monitoring system comprising a workstation having a display screen, a controller and an I/O subsystem. Claim 1 recites steps of generating and displaying on the display screen a trend chart containing values of one or more*

selected process parameters during a selected time window based on a user-defined trend chart configuration and generating and displaying on the display screen an event table containing information describing process events that are related to the selected process parameters and that occurred during the selected time window, such that the event table and the trend chart may be viewed on the display screen at the same time.

Hanson fails to disclose or suggest *that the event table and the trend chart may be viewed on the display screen at the same time*, as required by claim 1. The Examiner contends that Figures 6, 7, and 8 of Hanson constitute a trend chart and an event table that may be viewed on the display screen at the same time. The Examiner asserts that the alarms shown in Figures 6 and 7 and the text shown in Figure 8 are event tables. The Examiner further contends that Hanson discloses a control chart that contains event type, time interval and various parameters which corresponds to an event table, as shown at reference numeral 335 of Figure 3. Appellants respectfully disagree with the assertion that the alarms in Figures 6 and 7 and the text in Figure 8 are event tables. Appellants also disagree with the assertion that reference numeral 335 of Figure 3 corresponds to an event table.

More specifically, the alarm boxes shown in Figures 6 and 7 of Hanson are very different from the event table defined by claim 1, because claim 1 recites *an event table containing information describing process events that are related to the selected process parameters*. First, a single box with the word “alarm” inside can hardly be considered an event table. Even assuming, *arguendo*, that the alarm boxes of Figures 6 and 7 are event tables, these boxes do not contain information describing a process event, as claimed. These boxes simply indicate that the values have reached or exceeded an alarm threshold. As stated at page 6, line 27 – page 7, line 6 of Appellants’ specification, information describing an event may include a date and time, an event type, a category (e.g., instrument, process, system, user), an area (e.g., an area in the plant where the event occurred), a node (e.g., the name of a network node where the event was detected), and a module (e.g., a software module in which the event occurred). The alarm boxes in Figures 6 and 7 do not include any of these types of information.

Similarly, the text in Figure 8 is not an event table as defined by claim 1. Figure 8 shows a histogram (frequency distribution) of trend lengths for the data in Figure 7 (Col. 10, lines 4-8). Trend lengths are shown on the X-Axis of Figure 8 and the percent occurrence of those trend lengths is shown on the Y-Axis. Thus, Hanson discloses that the text in Figure 8 is a statistical

analysis of the frequency distribution of trend lengths from the data in Figure 7 (Hanson, Col. 10, lines 8-16). This statistical analysis of data is performed to calculate alarm threshold limits for trend lengths.

The text in Figure 8 is not an event table as defined in claim 1. The text in Figure 8 simply illustrates how the trend length threshold is calculated using certain parameters (e.g., estimated mean, estimated standard deviation). Nowhere does Hanson disclose that any of the text in Figure 8 is *information describing process events*, as required by Appellants' claim 1.

Further, there is no disclosure in Hanson, and the Examiner provides no explanation, of how the alleged "event table" of Figure 8 contains information describing process events that *occurred during the selected time window*, as no time window is shown in Figure 8. Indeed, as discussed above, the X-Axis of the histogram of Figure 8 represents trend lengths, not time. The Y-Axis represents the percent occurrence of those trend lengths. No selected time window is shown in Figure 8.

Moreover, Figure 8 fails to disclose or suggest a trend chart, as required by Appellants' claim 1. Instead, Figure 8 of Hanson shows a frequency distribution of trend lengths. As discussed above, a trend length is the difference in value between consecutive samples in a control chart. The frequency distribution of Figure 8 shows how often each trend length occurs in a control chart (i.e., the percentage of consecutive samples in the control chart that have each trend length). Thus, the frequency distribution of Figure 8 does not represent the value of a process variable over time, but instead indicates how often each trend length occurred in a control chart, regardless of the time when a particular trend length was observed.

Next, the Examiner asserts that reference number 335 of Figure 3 of Hanson contains information describing process events that are included in a trend chart when a chart is generated. The Examiner appears to argue that, because reference number 320 of Figure 3 shows the creation of plots based on historical data from an operational air-separation process (i.e., reference number 300 in Figure 3) and because reference number 335 allegedly shows information describing process events, Figure 3 discloses a trend chart and an event table that may be viewed on the display screen at the same time. Appellants respectfully disagree with this argument.

First, Appellants note that Figure 3 is a flow chart that shows the information stored by set-up database 160 and used in the creation and display of various control charts. Figure 3 is not a display screen, as recited in claim 1.

Second, even assuming, *arguendo*, that reference numeral 335 shows information describing process events, nowhere is there any indication that this “information” may be viewed on the display screen at the same time as a trend chart. Figure 3 simply shows that the “information” represented by reference numeral 335 and the plots represented by reference numeral 320 are stored in set-up database 160, which is then accessed by processor 200. There is no disclosure or suggestion, based on Figure 3, that the information represented by reference number 335 and the plots represented by reference number 320 are displayed at all, let alone together on a display screen.

Next, the information represented by reference number 335 is not *information describing process events*. Hanson discloses that reference number 335 of Figure 3 is intended to indicate that a user may specify certain parameters to be used in the statistical analysis of the air separation process data (Col. 8, lines 36-45). For example, the user may specify the alpha value for the designated level of type 1 error for which the control limits may be calculated (Col. 8, lines 55-60). Type 1 error, sometimes referred to as alpha error, is the probability of rejecting a null hypothesis that is actually true. Type 1 error is not a type of event that occurred during the selected time window, as the Examiner asserts. Similarly, reference number 335 shows other parameters that the user may specify, such as the sample interval and the sample subgroup size used in subgrouping the data (Col. 7, lines 42-49), the distribution form to be used (Col. 7, lines 62-66), and tuning constants associated with subgroup statistic calculations (Col. 8, lines 26-30). Thus, reference number 335 represents parameters that are used in statistical analysis of the data. Reference number 335 does not represent information describing process events.

In summary, it is Appellants’ position that Hanson fails to disclose or suggest an event table, as required by claim 1. Since Hanson fails to disclose or suggest an event table, Hanson cannot disclose or suggest a trend chart and an event table that *may be viewed on the display screen at the same time*. For these reasons, claims 1, 3, 4, and 5 patentably distinguish over Hanson.

2. The claims of Group II patentably distinguish over Hanson

For Group II, claim 2 is representative. Claim 2 patentably distinguishes over Hanson because Hanson fails to disclose or suggest *event markers being indicative of events from the event table and the respective times of the events*. Further, the Examiner's rejection of claims 2 and 8 as anticipated by Hanson is improper because the rejection fails to meet the requirements of 37 CFR §1.104(c)(2) which states that "when a reference is complex or shows or describes inventions other than that claimed by the applicant, the particular part relied upon must be designated as nearly as practicable. The pertinence of each reference, if not apparent, must be clearly explained and each rejected claim specified."

Neither the most recent Final Office Action nor any previous Office Action indicates what specific parts Hanson are asserted to meet the limitations of claims 2 and 8 and nowhere in any Office Action are the limitations of claims 2 and 8 discussed with respect to Hanson. Thus, Appellants are left to speculate as to which part of Hanson is asserted to meet the limitations recited in this claim.

Because the Examiner asserts that the alarm boxes shown in Figures 6 and 7 of Hanson are event tables, presumably the Examiner does not contend that these are also event markers. Further, these alarm boxes are very different from the event markers defined in claim 1 because claim 1 requires that the event markers be *indicative of events from the event table*. Hanson fails to disclose or suggest that the alarm boxes are in any way related to events from an event table. As Hanson fails to disclose or suggest *event markers being indicative of events from the event table and the respective times of the events*, claims 2 and 8 patentably distinguish over Hanson.

3. The claims of Group III patentably distinguish over Hanson

As discussed above, the claims of Group III were not rejected in the Detailed Action of October 22, 2002 and nowhere does the Office Action indicate which reference is asserted to disclose the limitations of the claims of Group III. Appellants are left to assume that the Examiner intended to reject these claims under 35 U.S.C. §102(b) as anticipated by Hanson. Further, the Examiner fails to meet the requirements of 37 CFR §1.104(c)(2), as no Office Action in the written record indicates what portions of Hanson are asserted to meet the limitations of claims 6 and 7.

Despite the Examiner's lack of specificity with regard to these claims, claim 6 patentably distinguishes over Hanson because Hanson fails to disclose or suggest *selecting at least one of the event markers displayed on the trend chart and highlighting, on the event table, the event associated with the selected event marker*, as recited in claim 6. Hanson altogether fails to disclose or suggest event markers and an event table. Thus, Hanson also fails to disclose or suggest selecting one of the event markers and highlighting the event associated with the selected event marker on the event table.

Claim 7 also patentably distinguishes over Hanson because Hanson fails to disclose or suggest *selecting at least one of the events displayed in the event table and highlighting the event marker associated with the event on the trend chart*. As discussed above, Hanson discloses neither an event table nor event markers, as defined by Appellants' claims. Further, Hanson contains no disclosure of selecting an event in the event table and highlighting the event marker associated with that event. Thus, claims 6 and 7 patentably distinguish over Hanson.

4. The Claims of Group IV patentably distinguish over Hanson

For Group IV, claim 9 is representative. Claim 9 patentably distinguishes over Hanson because Hanson fails to disclose a process control and/or monitoring system including, in part, means for generating and displaying an event table containing information describing process events that occurred during the selected time window, *such that the event table and the trend chart may be viewed on the display screen at the same time*, as recited in claim 9.

As discussed above, the Examiner asserts that the alarm boxes of Figures 6 and 7 are event tables. However, these boxes do not contain *information describing process events* as required by claim 9. Therefore, the alarm boxes in Figures 6 and 7 are not event tables as defined by claim 9. The Examiner also asserts that the text in Figure 8 of Hanson is an event table. However, this text simply relates to the calculation of trend length thresholds and does not contain *information describing process events*. The Examiner also asserts that reference number 335 of Figure 3 of Hanson shows an event table. As discussed above, Figure 3 does not show a display screen nor does Figure 3 show any information that is displayed on a display screen. Reference number 335 merely indicates that a user may specify certain parameters to be used in the statistical analysis of air separation process data. Reference number 335 does not *contain information describing process events*.

As the boxes of Figure 6 and 7 are not event tables and the text in Figure 8 is not an event table, Hanson fails to disclose that an event table and a trend chart *may be viewed on the display screen at the same time*. Thus, claim 9 patentably distinguishes over Hanson.

5. The claims of Group V patentably distinguish over Hanson

For Group V, claim 10 is representative. The Examiner again fails to meet the requirements of 37 CFR. 1.104(c)(2) as the limitations recited in claim 10 are not addressed with respect to Hanson. Appellants are again left to speculate as to which part of Hanson is asserted to disclose the limitations of claim 10.

Nevertheless, claim 10 patentably distinguishes over Hanson because Hanson fails to disclose or suggest *means for generating and displaying event markers on the display screen, the event markers being indicative of events from the event table and the respective times of the events*, as recited by Appellants' claim 10. Thus, claim 10 is patentable over Hanson.

6. The claims of Group VI patentably distinguish over Hanson

As discussed above, claim 13 was not rejected in the Detailed Action of October 22, 2002 and nowhere does the Office Action indicate which reference is asserted to disclose the limitations of the claims of Group VI. Appellants are left to assume that the Examiner intended to reject these claims under 35 U.S.C. §102(b) as anticipated by Hanson. Further, the Examiner fails to meet the requirements of 37 CFR §1.104(c)(2), as no Office Action in the written record indicates what portions of Hanson are asserted to meet the limitations of claim 13.

Notwithstanding these issues, claim 13 patentably distinguishes over Hanson because Hanson fails to disclose or suggest *means for highlighting an event marker displayed on the trend chart in response to selection of a process event displayed on the event table and associated with the event marker*, as recited in claim 13. Hanson altogether fails to disclose or suggest event markers and an event table. Thus, Hanson also fails to disclose or suggest highlighting an event marker in response to selection of a process event displayed on the event table. Accordingly, claim 13 patentably distinguishes over Hanson.

7. The claims of Group VII patentably distinguish over Hanson

For Group VII, claim 14 is representative. Claims 14 and 15 patentably distinguish over Hanson. Claim 14 recites a graphical user interface comprising *a first display area configured to display at least one trend line representative of at least one parameter associated with the process and a second display area configured to display information representative of at least one process event*. Claim 14 further requires *event markers related to the at least one process event and displayed on the first display area*.

Hanson does not disclose or suggest an interface having two display areas, wherein the first display area is configured to display a trend line and the second display area is configured to display information representative of a process event. The Examiner asserts that the alarms shown in Figures 6 and 7 and the text shown in Figure 8 are event tables. The Examiner further contends that Hanson discloses a control chart that contains event type, time interval and various parameters which corresponds to an event table, as shown at reference numeral 335 of Figure 3. Appellants respectfully disagree with the assertion that the alarms in Figures 6 and 7 and the text in Figure 8 are event tables. Appellants also disagree that reference numeral 335 of Figure 3 corresponds to an event table.

As discussed above, the Examiner asserts that the alarm boxes of Figures 6 and 7 are event tables. However, these boxes do not display *information representative of at least one process event* as required by claim 14. Therefore, the alarm boxes in Figures 6 and 7 are not second display areas, as defined by claim 14. The Examiner also asserts that the text in Figure 8 of Hanson is an event table. However, this text simply relates to the calculation of trend length thresholds and does not contain *information representative at least one process event*. The Examiner also asserts that reference number 335 of Figure 3 is an event table. As discussed above, Figure 3 shows a flow chart rather than a display screen. Further, reference number 335 indicates the ability of a user to specify certain parameters to be used in the statistical analysis of air separation process data. Reference number 335 does not show *information representative of at least one process event*.

As the alarm boxes of Figures 6 and 7, the text in Figure 8, and reference number 335 of Figure 3 do not show information representative of at least one process event, these figures fail to disclose a second display area configured to display information representative of at least one process event, as claimed.

Further, with respect to the limitation of claim 14 that recites *event markers related to the at least one process event and displayed on the first display area*, the Examiner again fails to meet the requirements of 37 CFR 1.104(c)(2) in that this limitation of claim 14 is neither addressed nor even mentioned in the Office Action of October 22, 2002, or any previous Office Action related to this application. Nowhere does any Office Action in this application identify what part of Hanson is asserted to disclose this limitation of claim 14.

Indeed, Hanson fails to disclose or suggest this limitation of claim 14. Nowhere does Hanson disclose or suggest event markers related to a process event that are displayed on the first display area. Thus, the claims of Group VII patentably distinguish over Hanson.

8. The claims of Group VIII patentably distinguish over Hanson

Claim 16 patentably distinguishes over Hanson because Hanson fails to disclose or suggest that the *information representative of the process events includes a time of occurrence of each of the at least one process event*. Because the Examiner again fails to meet the requirements of 37 CFR §1.104(c)(2) with respect to claim 16, Appellants remain unclear as to what part of Hanson is asserted to disclose the limitations of claim 16.

Nevertheless, claim 16 patentably distinguishes over Hanson. As discussed above, Hanson fails to disclose displaying information representative of at least one process event. Hence, Hanson must also fail to disclose or suggest that the information representative of the process events includes a time of occurrence of each of the at least one process event. The alarm boxes in Figures 6 and 7 of Hanson show a point on the control chart at which a threshold was exceeded. This point on the chart indicates when the alarm occurred relative to the other subgroups on the control chart, but does not indicate a time of occurrence of the alarms. Therefore, claim 16 patentably distinguishes over Hanson.

9. The claims of Group IX patentably distinguish over Hanson

For Group IX, claim 17 is representative. Claim 17 patentably distinguishes over Hanson because Hanson fails to disclose a system for monitoring a process including, in part, *means for simultaneously displaying a trend graph representing at least a portion of the historical trend data and a table representing at least a portion of the event records*, as recited in claim 17.

As discussed above, the alarm boxes in Figure 6 and 7, the text in Figure 8, and the user inputs of reference number 335 in Figure 3 are not event records, as the Examiner asserts. Thus, Figures 3 and 6-8 do not disclose simultaneously displaying a trend graph and a table representing at least a portion of the event records.

Further, Hanson fails to disclose or suggest *an event database containing event records related to the process*. Nowhere does Hanson even mention the monitoring or recording of process events, let alone a database containing event records. Although Hanson does disclose the use of alarms, these alarms are created based on statistical analysis of the process data. Further, although Hanson discloses storing criteria for trend alarms (e.g., thresholds) into a set-up database, the alarms themselves are not stored and, in fact, are only generated when the criteria from the database is applied to a control chart (Col. 6, lines 55-60). Thus, the claims of Group IX patentably distinguish over Hanson. Accordingly, it is respectfully requested that the rejection of these claims be withdrawn.

10. The claims of Group X patentably distinguish over Hanson

Claim 20 patentably distinguishes over Hanson because Hanson fails to disclose or suggest *means for displaying, on the trend graph, event markers that are related to the event records*. Hanson fails to disclose event records, much less means for displaying event markers that are related to the event records.

The alarm boxes shown in Figures 6 and 7 of Hanson are not event markers as defined by claim 20. Claim 20 requires that the event markers be *related to the event records*. Hanson fails to disclose or suggest that these alarm boxes are in any way related to event records. Thus, claim 20 patentably distinguishes over Hanson.

11. The claims of Group XI patentably distinguish over Hanson

Claim 21 patentably distinguishes over Hanson because Hanson fails to disclose or suggest *a run time database containing current trend data and means for displaying the current trend data on the trend graph*.

As shown in Figure 3 of Hanson, Hanson discloses performing statistical analysis on and generating control charts for historical data. By contrast, the run-time database of claim 21 contains current trend data. Thus, claim 21 patentably distinguishes over Hanson.

12. The claims of Group XII patentably distinguish over Hanson

Claim 22 patentably distinguishes over Hanson because Hanson fails to disclose or suggest *a chart file containing a trend graph configuration information and filter settings from previously developed trend graphs, the chart file being used by the means to configure the trend graph.*

Nowhere does Hanson disclose or suggest that filter settings from previously developed trend graphs may be placed in a chart file and used to configure the trend graph. Thus, claim 22 patentably distinguishes over Hanson.

13. The claims of Group XIII patentably distinguish over Hanson

For Group XIII, claim 23 is representative. Claim 23 is directed to a system to coordinate and display information related to a process variable. The system comprises a workstation including a display screen, a first display region on the display screen that displays process trends related to the process variable, and a second display region on the display screen that displays a table of event records related to the process variable.

Hanson fails to disclose or suggest *a first display region on the screen that displays process trends related to the process variable and a second display region on the display screen that displays a table of event records relate to the process variable.* As discussed above, the Examiner asserts that the alarm boxes in Figures 6 and 7 are tables of event records. The Examiner further asserts that the text in Figure 8 is a table of event records and that reference numeral 335 in Figure 3 is a table of event records.

However, the alarm boxes in Figures 6 and 7 are generated after the air separation process is complete, based on a statistical analysis of the recorded data. Therefore, the alarms are not process events that occurred during the selected time window. Further, the text in Figure 8 simply illustrates the calculation of trend length thresholds and does not show event records that relate to a process variable. Additionally, as discussed above, reference number 335 of Figure 3 indicates the ability of a user to specify certain parameters to be used in the statistical analysis of air separation process data and does not show event records.

Therefore, Hanson does not disclose a first display region on a display screen that displays process trends and a second display region on the same screen that displays a table of event records. Thus, the claims of Group V patentably distinguish over Hanson.

14. The claims of Group XIV patentably distinguish over Hanson

Claim 24 patentably distinguishes over Hanson because Hanson fails to disclose or suggest *means for linking at least a portion of the table of event records to at least a portion of the event markers*.

Hanson fails to disclose or suggest that a portion of the table of event records may be linked to event markers. Nowhere does Hanson disclose or suggest that the alarm boxes of Figures 6 and 7 of Hanson may be linked to event records. Indeed, Hanson fails to disclose or suggest event records altogether. Thus, claim 24 patentably distinguishes over Hanson.

B. The rejection of claims 1, 3-5, 9, 11 and 12 under 35 U.S.C. §102(b) as anticipated by Murphy should be reversed.

The representative claims of Groups I and IV stand rejected under 35 U.S.C. §102(b) as anticipated by Murphy, et al., U.S. Patent No. 5,768,148. Each of these claims is addressed individually below.

Murphy is directed to a man-machine interface for power management control systems. Murphy discloses a utility for rapid development of three dimensional representations of electrical distribution switchgear. Murphy discloses three-dimensional representations of switchgear devices (referred to as switchgear elevations) that have logical connections to the switchgear devices. Any representation of a switchgear device can be modified to any dimensions with an infinite number of combinations and arrangements of meters and protection devices to quickly and accurately represent a customer's switchgear. Also, an event logger utility is provided for viewing, organizing, and analyzing unusual behavior in a power system (Abstract).

Figures 6-8 of Murphy show waveform capture windows generated by the computer software. Figure 5 of Murphy shows an event/alarm logger window generated by the computer

software. Figure 24 of Murphy shows an Intouch Windowviewer window generated by the computer software. These Figures are discussed in more detail below.

1. The claims of Group I patentably distinguish over Murphy

For the claims of Group I, claim 1 is representative. Claim 1 is directed to a method for displaying process information in a process control and/or monitoring system comprising a workstation having a display screen, a controller and an I/O subsystem. Claim 1 recites steps of *generating and displaying on the display screen a trend chart containing values of one or more selected process parameters during a selected time window based on a user-defined trend chart configuration, and generating and displaying on the display screen an event table containing information describing process events that are related to the selected process parameters and that occurred during the selected time window, such that the event table and the trend chart may be viewed on the display screen at the same time.*

In the Final Office Action of October 22, 2002, the Examiner asserts that the waveform capture module of Murphy, described at column 12, lines 6-37 and shown in Figures 6-8, is a trend chart. The Examiner further asserts that the event logger module of Murphy, described at column 11, lines 15 – column 12, lines 7 is an event table. Additionally, the Examiner asserts that Figure 24 shows that the event table and the trend chart may be viewed on the display screen at the same time. In the telephone interview of February 3, 2002, the Examiner clarified her position, asserting that the top right portion of Figure 24 shows the values of metered data (e.g., Amps, Volts L-N, kW, kVAR, kVA) over time (e.g., A, B, C, N), while the bottom right portion of Figure 24 is an event table showing process events (e.g., Trip Operations Counter, Sw. Inst/Short Time, etc.). The Examiner asserts that these events correspond to events shown in the event logger module depicted in Figure 5.

However, Murphy fails to disclose generating and displaying a trend chart and event table, *such that the event table and the trend chart may be viewed on the display screen at the same time*, as required by claim 1. Assuming, *arguendo*, that the waveform capture module shown in Figure 6 is a trend chart and the event logger module shown in Figure 5 is an event table, nowhere does Murphy disclose or suggest that the waveform capture module and the event logger module can be displayed on the display screen at the same time.

Further, although the Examiner asserts that the top portion of Figure 24 is a trend chart and the bottom right portion of Figure 24 is an event table, Murphy provides no basis for these assertions. Nowhere does Murphy disclose that Amps, Volts L-N, kW, kVAR, kVAR are process parameters and that the designations A, B, C, and N show their values over time. While Murphy does not explicitly disclose the purpose of the designations A, B, C, and N, Murphy provides no basis for the assertion that they relate to time. For example, these designations may relate to the values of Amps, Volts, etc, in different operating modes of the particular equipment. The Examiner has failed to identify any disclosure by Murphy which indicates that the top portion of Figure 24 shows the values of the listed elements (e.g., Amps, Volts, etc.) over time.

Further, the Examiner unreasonably assumes that the elements listed in the bottom right portion of Figure 24 (e.g., Trip Operations Counter, Sw. Inst./Short Time, etc.) are events. The Examiner assumes that because some of the elements of this list have some of the same words as the event names in the event logger module shown in Figure 5 (e.g., Current Unbalance Relay in Figure 24 and Current Unbalance Alarm in Figure 5), that the elements listed in Figure 24 are events. Nowhere does Murphy disclose or suggest that these elements listed in Figure 24 are events. Although Murphy does not explicitly disclose what these elements represent, it appears that this list indicates whether certain features of the device are currently disabled or enabled. This is very different from an event.

Additionally, even assuming, *arguendo*, that the top portion of Figure 24 is a trend chart and the bottom right portion of Figure 24 is an event table containing information describing process events, Murphy fails to disclose or suggest that the process events of the event table *are related to the selected process parameters* of the trend chart, as required by claim 1. For example, there is no disclosure or suggestion in Murphy that the “Trip Operations Counter” shown in the lower portion of Figure 24, relates to “Amps,” shown in the top portion of Figure 24.

Thus, because Murphy fails to disclose *generating and displaying a trend chart*, *generating and displaying an event table*, and that *the event table and trend chart may be viewed on the display screen at the same time*, claim 1 patentably distinguishes over Murphy.

2. The claims of Group IV patentably distinguish over Murphy

For Group IV, claim 9 is representative. Claim 9 is directed to process control and/or monitoring system that comprises *means for generating and displaying on the display screen a trend chart containing values of one or more selected process parameters during a selected time window based on a user-defined trend chart configuration and means for generating and displaying on the display screen an event table containing information describing process events that are related to the selected process parameters and that occurred during the selected time window, such that the event table and the trend chart may be viewed on the display screen at the same time.*

Claim 9 patentably distinguishes over Murphy. Murphy fails to disclose means for generating and displaying a trend chart and an event table, *such that the event table and the trend chart may be viewed on the display screen at the same time.* Assuming, *arguendo*, that the waveform capture module shown in Figure 6 is a trend chart and the event logger module shown in Figure 5 is an event table, nowhere does Murphy disclose or suggest that the waveform capture module and the event logger module are displayed on the display screen at the same time.

Further, there is no basis for the assertion that the top portion of Figure 24 is a trend chart and the bottom right portion of Figure 24 is an event table. Nowhere does Murphy disclose that Amps, Volts L-N, kW, kVAR, kVAR are process parameters and that the designations A, B, C, and N show their value over time. Likewise, nowhere does Murphy disclose or suggest that the elements listed in the bottom right portion of Figure 24 are events. Although Murphy does not explicitly disclose what these elements represent, it appears that this list indicates whether certain features of the device are currently disabled or enabled.

Additionally, even assuming, *arguendo*, that the top portion of Figure 24 is a trend chart and the bottom right portion of Figure 24 is an event table containing information describing process events, Murphy fails to disclose or suggest that the process events of the event table *are related to the selected process parameters* of the trend chart, as required by claim 9. There is no disclosure or suggestion anywhere in Murphy that indicates that the bottom right portion of Figure 24 is in any way related to the top portion of Figure 24.

Thus, because Murphy fails to disclose *means for generating and displaying a trend chart, means for generating and displaying an event table*, and that *the event table and trend*

chart may be viewed on the display screen at the same time, claim 9 patentably distinguishes over Murphy.

C. Conclusion

For the foregoing reasons, claims 1-24 are clearly and patentably distinguished over the cited prior art. Accordingly, the Board is respectfully requested to reverse the final rejection.

Respectfully submitted,

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IX. APPENDIX: CLAIMS INVOLVED IN THE APPEAL (37 CFR §1.192(c)(9))

1. (Amended) A method for displaying process information in a process control and/or monitoring system comprising a workstation having a display screen, a controller and an I/O subsystem, said workstation executing the steps of:

generating and displaying on the display screen a trend chart containing values of one or more selected process parameters during a selected time window based on a user-defined trend chart configuration; and

generating and displaying on the display screen an event table containing information describing process events that are related to the selected process parameters and that occurred during the selected time window, such that the event table and the trend chart may be viewed on the display screen at the same time.

2. The method of claim 1, further comprising a step of:

displaying event markers on the trend chart, the event markers being indicative of events from the event table and the respective times of the events.

3. The method of claim 1, wherein the trend chart is a line graph.

4. The method of claim 1, further comprising a step of:

saving trend chart configuration information in the workstation for later use.

5. The method of claim 4, further comprising a step of:

selecting, before the step of generating and displaying the trend chart, information associated with configuration of at least one trend chart saved in the workstation.

6. The method of claim 2, further comprising the steps of:
selecting at least one of the event markers displayed on the trend chart; and
highlighting, on the event table, the event associated with the selected event marker.
7. The method of claim 2, further comprising the steps of:
selecting at least one of the events displayed in the event table; and
highlighting the event marker associated with the event on the trend chart.
8. The method of claim 2, wherein the step of displaying the event markers includes a step of displaying the event markers as event names.
9. (Amended) A process control and/or monitoring system comprising:
a process controller;
an I/O subsystem; and
a workstation having a display screen, said workstation comprising:
means for generating and displaying on the display screen a trend chart containing values of one or more selected process parameters during a selected time window based on a user-defined trend chart configuration; and
means for generating and displaying on the display screen an event table containing information describing process events that are related to the selected process

parameters and that occurred during the selected time window, such that the event table and the trend chart may be viewed on the display screen at the same time.

10. The system of claim 9, further comprising:

means for generating and displaying event markers on the display screen, the event markers being indicative of events from the event table and the respective times of the events.

11. The system of claim 9, further comprising:

means for saving trend chart configuration information for later use.

12. The system of claim 11, further comprising:

means for selecting the saved trend chart configuration information for use by the means for generating and displaying the trend chart.

13. The system of claim 9, further comprising:

means for highlighting an event marker displayed on the trend chart in response to selection of a process event displayed on the event table and associated with the event marker.

14. A graphical user interface for displaying trend and event data related to the operation of a process, the interface comprising:

a first display area configured to display at least one trend line representative of at least one parameter associated with the process;

a second display area configured to display information representative of at least one process event; and

event markers related to the at least one process event and displayed on the first display area.

15. The graphical user interface of claim 14, wherein the first display area includes more than one trend graph and a separate y-axis scale for each of the more than one trend graphs.

16. The graphical user interface of claim 14, wherein the information representative of the process events includes a time of occurrence of each of the at least one process event.

17. A system for monitoring a process comprising:

an event database containing event records related to the process;

a trend database containing historical trend data related to the process;

means for simultaneously displaying a trend graph representing at least a portion of the historical trend data and a table representing at least a portion of the event records, wherein the table displays event records related to the portion of the historical trend data being displayed on the trend graph.

18. The system of claim 17, further comprising means for selecting which portion of the trend data and the event records are displayed.

19. The system of claim 18, wherein the specified portion is a time interval having a start time and an end time.
20. The system of claim 17, further comprising:
means for displaying, on the trend graph, event markers that are related to the event records.
21. The system of claim 17, further comprising:
a run time database containing current trend data; and
means for displaying the current trend data on the trend graph.
22. The system of claim 17, further comprising:
means for configuring the trend graph; and
a chart file containing trend graph configuration information and filter settings from previously developed trend graphs, the chart file being used by the means to configure the trend graph to configure the trend graph.
23. A system to coordinate and display information related to a process variable comprising:
a workstation including a display screen;
a first display region on the display screen that displays process trends related to the process variable; and
a second display region on the display screen that displays a table of event records related to the process variable.

24. The system of claim 23, further comprising:
- event markers displayed in the first display region;
 - means for linking at least a portion of the table of event record to at least a portion of the event markers.